United States Department of Agriculture
Natural Resources Conservation Service

Ecological Site Description

Site Type: Rangeland

Site Name: Lowland (LL) 15-19" Black Hills Precipitation Zone,

Site ID: 061XY128WY

Major Land Resource Area: 61 – Black Hills Foot Slopes

Physiographic Features

This site is located on nearly level land adjacent to streams that run water at least during the major part of the growing season.

Landform: alluvial fans, drainage ways & stream terraces **Aspect:** N/A

	Minimum	Maximum
Elevation (feet):	3500	5000
Slope (percent):	0	6
Water Table Depth (inches):	12	>60
Flooding:		
Frequency:	occasional	frequent
Duration:	brief	long
Ponding:		
Depth (inches):	0	0
Frequency:	None	None
Duration:	None	None
Runoff Class:	negligible	low

Climatic features

Annual precipitation ranges from 15-19 inches per year. Wide fluctuations may occur in yearly precipitation and result in more dry years than those with more than normal precipitation. Temperatures show a wide range between summer and winter and between daily maximums and minimums. This is predominantly due to the high elevation and dry air, which permits rapid incoming and outgoing radiation. Cold air outbreaks in winter move rapidly from northwest to southeast and account for extreme minimum temperatures. Extreme storms may occur during the winter, but most severely affect ranch operations during late winter and spring.

Strong winds are less frequent than over other areas of Wyoming. Occasional storms, however, can bring brief periods of high winds with gusts exceeding 50 mph.

Growth of native cool season plants begins about April 1 and continues to about July 1. Native warm season plants begin about May 15 and continue to about August 15. Fall green-up may occur in September and last through October.

The following information is from the "Devils Tower 2" climate station:

	Minimum	Maximum	5 yrs. out of 10 between
Frost-free period (days) (32°F):	58	93	June 6 – September 7
Freeze-free period (days) (28°F):	95	125	May 18 – September 20
Annual Precipitation (inches):	14.81	20.17	

Mean annual precipitation: 17.66 inches
Mean annual air temperature: 44.4°F (28.6°F Avg. Min. to 60.1°F Avg. Max.)
For detailed information visit the Natural Resources Conservation Service National Water and Climate Center at http://www.wcc.nrcs.usda.gov/ website. Other climate station(s) representative of this precipitation zone include "Hulett" and "Sundance".

Influencing Water Features

Wetland Description: System Subsystem Class Sub-class

Stream Type: C

Representative Soil Features

The soils of this site are deep and very deep well-drained soils formed in mixed alluvium. These soils have moderate permeability. The surface soil will be highly variable and vary from 2 to 8 inches in thickness. Layers of the soil most influential to the plant community vary from 3 to 6 inches thick. The surface soil will be one or more of the following textures: very fine sandy loam, fine sandy loam, sandy loam, loam, silt loam, clay loam, clay, or silty clay. A fluctuating water table occurs in these areas and ranges from 1 to 5 feet but is usually deeper than 3 feet.

Parent Material Kind: alluvium
Parent Material Origin: sandstone, shale
Surface Texture: loam, clay loam, clay, fine sandy loam, sandy loam, loamy sand
Surface Texture Modifier: none is most common, but gravelly or cobbly may occur
Subsurface Texture Group: loam
Surface Fragments ≤ 3" (% Cover): typically 0, occasionally up to 10
Surface Fragments > 3" (%Cover): typically o, occasionally up to 10
Subsurface Fragments ≤ 3" (% Volume): typically o, occasionally up to 10
Subsurface Fragments > 3" (% Volume): typically o, occasionally up to 10

	Minimum	Maximum
Drainage Class:	poorly drained	well drained
Permeability Class:	moderately slow	rapid
Depth (inches):	20	>60
Electrical Conductivity (mmhos/cm) ≤20":	0	8
Sodium Absorption Ratio ≤20":	0	10
Soil Reaction (1:1 Water) ≤20":	6.6	8.4
Soil Reaction (0.1M CaCl2) ≤20":	NA	NA
Available Water Capacity (inches) ≤30":	1	6.2
Calcium Carbonate Equivalent (percent) ≤20":	0	5

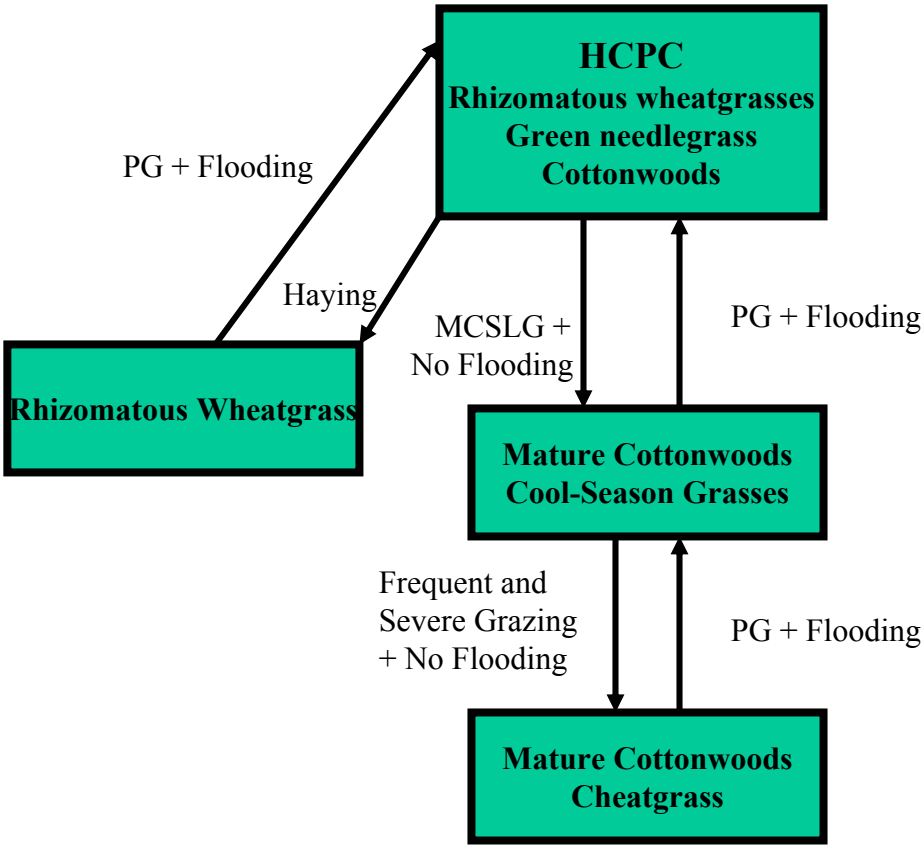
Plant Communities

Ecological Dynamics of the Site:

As this site deteriorates, species such as snowberry, wild rose and silver sagebrush will increase and species such as Kentucky bluegrass will invade. Cool season grasses such as green needlegrass and rhizomatous wheatgrasses will decrease in frequency and production. Mature cottonwoods do not reproduce.

The Historic Climax Plant Community (description follows the plant community diagram) has been determined by study of rangeland relic areas, or areas protected from excessive disturbance. Trends in plant communities going from heavily grazed areas to lightly grazed areas, seasonal use pastures, and historical accounts have also been used.

The following is a State and Transition Model Diagram that illustrates the common plant communities (states) that can occur on the site and the transitions between these communities. The ecological processes will be discussed in more detail in the plant community narratives following the diagram.



BM - Brush Management (fire, chemical, mechanical)
Freq. & Severe Grazing - Frequent and Severe Utilization of the Cool-season Mid-grasses during the Growing Season
GLMT - Grazing Land Mechanical Treatment
LTPG - Long-tem Prescribed Grazing
MCSLG - Moderate, Continuous Season-long Grazing
NU, NF - No Use and No Fire
PG - Prescribed Grazing (proper stocking rates with adequate recovery periods during the growing season)
VLTPG - Very Long-term Prescribed Grazing (could possibly take generations)
Na - Moderate Sodium in Soil

Plant Community Composition and Group Annual Production

Reference Plant Community (HCPC)

COMMON NAME/GROUP NAME	SCIENTIFIC NAME	SYMBOL	Annual Production (Normal Year) Total: 3300		
			Group	lbs./acre	% Comp.
GRASSES AND GRASS-LIKES					
GRASSES/GRASSLIKES					
Green needlegrass	Nassella viridula	NAVI4	1	330 - 825	10 - 25
Big bluestem	Andropogon gerardii	ANGE	2	165 - 330	5 - 10
Canada wildrye	Elymus canadensis	ELCA4	3	165 - 330	5 - 10
Columbia needlegrass	Achnatherum nelsonii	ACNE9	4	165 - 330	5 - 10
Big bluegrass	Poa ampla (syn. P. secunda)	POAM	5	165 - 330	5 - 10
Western wheatgrass	Pascopyrum smithii	PASM	6	165 - 330	5 - 10
Pumpelly bromegrass	Bromus inermis spp. pumpellianus	BRINP5	7	0 - 330	0 - 10
MISC. GRASSES/GRASSLIKES			**8**	**165 - 660**	**5 - 20**
Little bluestem	Schizachyruim scoparium	SCSC	8	0 - 165	0 - 5
Mat muhly	Muhlenbergia richardsonis	MURI	8	0 - 165	0 - 5
Needleandthread	Hesperostipa comata	HECO26	8	0 - 165	0 - 5
Prairie junegrass	Koeleria macrantha	KOMA	8	0 - 165	0 - 5
Richardson's needlegrass	Achnatherum richardsonii	ACRI8	8	0 - 165	0 - 5
Sandberg bluegrass	Poa secunda	POSE	8	0 - 165	0 - 5
Switchgrass	Panicum virgatum	PAVI2	8	0 - 165	0 - 5
other perennial grasses (native)		2GP	8	0 - 165	0 - 5
FORBS			**9**	**165 - 330**	**5 - 10**
American licorice	Glycyrrhiza lepidota	GLLE3	9	0 - 165	0 - 5
Dotted blazing star	Liatris punctata	LIPU	9	0 - 165	0 - 5
Goldenrod	Solidago spp.	TEPHR3	9	0 - 165	0 - 5
Green sagewort	Artemisa glauca (syn. A. dracunculus)	ARDR4	9	0 - 165	0 - 5
Penstemons	Penstemon spp.	PENST	9	0 - 165	0 - 5
Purple prairieclover	Dalea lasiathera	DALA4	9	0 - 165	0 - 5
other perennial forbs (native)		2FP	9	0 - 165	0 - 5
TREES/SHRUBS			**10**	**165 - 330**	**5 - 10**
American plum	Prunus americana	PRAM	10	0 - 165	0 - 5
Chokecherry	Prunus virginiana	PRVIV	10	0 - 165	0 - 5
Cottonwood	Populus angustifolia	POAN3	10	0 - 165	0 - 5
Green ash	Fraxinus pennsylvanica	FRPE	10	0 - 165	0 - 5
Hawthorn	Crataegus spp.	CRATA	10	0 - 165	0 - 5
Silver sagebrush	Artemisia cana	ARCA13	10	0 - 165	0 - 5
Snowberry	Symphoricarpus occidentalis	SYOC	10	0 - 165	0 - 5
Wild rose	Rosa woodsii var. woodsii	ROWOW	10	0 - 165	0 - 5
other shrubs & half shrubs (native)		2SHRUB	10	0 - 165	0 - 5

This list of plants and their relative proportions are based on near normal years. Fluctuations in species composition and relative production may change from year to year dependent upon precipitation or other climatic factors.

Plant Community Narratives

Following are the narratives for each of the described plant communities. These plant communities may not represent every possibility, but they probably are the most prevalent and repeatable plant communities. The plant composition tables shown above have been developed from the best available knowledge at the time of this revision. As more data is collected, some of these plant communities may be revised or removed, and new ones may be added. None of these plant communities should necessarily be thought of as "Desired Plant Communities". According to the USDA NRCS National Range and Pasture Handbook, Desired Plant Communities (DPC's) will be determined by the decision-makers and will meet minimum quality criteria established by the NRCS. The main purpose for including any description of a plant community here is to capture the current knowledge and experience at the time of this revision.

Rhizomatous Wheatgrasses/ Green Needlegrass/ Cottonwoods Plant Community

The interpretive plant community for this site is the Historic Climax Plant Community (HCPC). This state evolved with grazing by large herbivores and is well suited for grazing by domestic livestock. Potential vegetation is about 80% grasses or grass-like plants, 10% forbs and 10% woody plants. The understory is dominated by cool season midgrasses. The major grasses include rhizomatous wheatgrasses, Canada wildrye, green needlegrass, big bluestem and Columbia needlegrass. Other grasses occurring on the state include Sandberg bluegrass, Richardson's needlegrass, needleandthread and prairie junegrass. Cottonwoods, green ash, hawthorn, silver sagebrush and chokecherry of various age classes are a conspicuous part of the overstory.

The total annual production (air-dry weight) of this state is about 3300 pounds per acre, but it can range from about 2000 lbs/acre in unfavorable years to about 4000 lbs/acre in above average years.

The following is the growth curve of this plant community expected during a normal year:
Growth curve number: WY1602
Growth curve name: 15-19BL, Extra Water Sites
Growth curve description: Extra Water Sites

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	20	25	20	10	15	5	0	0

(Monthly percentages of total annual growth)

This plant community is extremely stable and well adapted to the Black Hills Foot Slopes climatic conditions. The diversity in plant species allows for high drought tolerance. This is a sustainable plant community (site/soil stability, watershed function, and biologic integrity).

Transitions or pathways leading to other plant communities are as follows:

- Moderate, continuous season-long grazing and lack of flooding will convert this plant community to the *Mature cottonwoods/Cool-Season Grass Plant Community.*
- Frequent and Severe Grazing and lack of flooding will convert this plant community to the *Mature cottonwoods*/C*heatgrass Plant Community.*
- Haying will convert this state to the *Rhizomatous Wheatgrass Plant Community.*

Mature cottonwoods/Cool-Season Grass Plant Community
This plant community evolved under moderate grazing by domestic livestock. Cool-season grasses make up the majority of the understory with the balance made up of short warm-season grasses, annual cool-season grass, and miscellaneous forbs. Mature Cottonwoods and green ash make up the overstory.

Dominant grasses include rhizomatous wheatgrasses, Kentucky bluegrass, needleandthread, and green needlegrass. Grasses of secondary importance include prairie junegrass, Sandberg bluegrass and Richardson's needlegrass. Forbs commonly found in this plant community include Louisiana sagewort (cudweed), plains wallflower, hairy goldaster, slimflower scurfpea, and scarlet globemallow. Silver sagebrush, wild rose, and snowberry canopy cover may be 20-40%.

When compared to the Historical Climax Plant Community, western wheatgrass and green needlegrass have decreased. Needleandthread and Sandberg bluegrass have increased. Silver sagebrush has increased. Reproduction of cottonwoods is limited. The overstory of cottonwoods and green ash and understory of grass and forbs provide a diverse plant community that will support domestic livestock and wildlife such as birds, mule deer and antelope.

The total annual production (air-dry weight) of this state is about 2500 pounds per acre, but it can range from about 2000 lbs/acre in unfavorable years to about 3000 lbs/acre in above average years.

The following is the growth curve of this plant community expected during a normal year:
Growth curve number: WY1602
Growth curve name: 15-19BL, Extra Water Sites
Growth curve description: Extra Water Sites

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	20	25	20	10	15	5	0	0

(Monthly percentages of total annual growth)

The state is stable and protected from excessive erosion. The biotic integrity of this plant community is usually intact. However, the lack of cottonwood reproduction will reduce the wildlife habitat. The watershed is usually functioning.

Transitional pathways leading to other plant communities are as follows:

- Prescribed grazing and flooding will result in a plant community very similar to the *Historic Climax Plant Community.*
- Frequent and Severe Grazing and lack of flooding will convert this plant community to the *Mature cottonwoods/Cheatgrass Plant Community.*

Mature Cottonwoods/Cheatgrass Plant Community
This plant community is the result of long-term improper grazing use. Rhizomatous wheatgrasses, cheatgrass, and blue grama dominate this state. Silver sagebrush and snowberry have increased. Mature cottonwoods and green ash make up the overstory. Noxious weeds such as Canada thistle and leafy spurge may invade.

When compared to the Historic Climax Plant Community rhizomatous wheatgrasses and green needlegrass have decreased. Silver sagebrush has increased. Cottonwoods have not reproduced.

The total annual production (air-dry weight) of this state is about 1500 pounds per acre, but it can range from about 800 lbs/acre in unfavorable years to about 1800 lbs/acre in above average years.

The following is the growth curve of this plant community expected during a normal year:
Growth curve number: WY1602
Growth curve name: 15-19BL, Extra Water Sites
Growth curve description: Extra Water Sites

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	20	25	20	10	15	5	0	0

(Monthly percentages of total annual growth)

The soil of this state is protected. The watershed is functioning but may produce excessive runoff. The biotic integrity is threatened by invasive species.

Transitional pathways leading to other plant communities are as follows

- Prescribed Grazing and flooding over the long-term will return this state to near *Historic Climax Plant Community,* except that silver sagebrush and mature cottonwoods will persist.

Rhizomatous Wheatgrass Plant Community
This plant community is the result of haying. The state is dominated by western wheatgrass with some green needlegrass. This state may be invaded by tame grasses such as smooth brome and timothy. The overstory is mature cottonwoods.

When compared to the Historic Climax Plant Community this state has lost much of its diversity. Woody vegetation is mainly mature cottonwoods. There are few forbs. The soil is protected by western wheatgrass sod.

The total annual production (air-dry weight) of this state is about 2000 pounds per acre, but it can range from about 1500 lbs/acre in unfavorable years to about 2500 lbs/acre in above average years.

The following is the growth curve of this plant community expected during a normal year:
Growth curve number: WY1602
Growth curve name: 15-19BL, Extra Water Sites
Growth curve description: Extra Water Sites

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	5	20	25	20	10	15	5	0	0

(Monthly percentages of total annual growth)

The soil of this state is protected from erosion. The biotic community is restricted by the lack of diversity. Watershed values are protected due to the lack of steep slopes on this site.

Transitional pathways leading to other plant communities are as follows.

- Prescribed grazing and flooding may return this state to the *Historic Climax Plant Community* over the long term.

Ecological Site Interpretations

Animal Community – Wildlife Interpretations

Historic Climax Plant Community: The predominance of grasses in this plant community favors grazers and mixed-feeders, such as bison, elk, and antelope. Suitable thermal and escape cover for deer may be limited due to the low quantities of woody plants. However, topographical variations could provide some escape cover. When found adjacent to sagebrush dominated states, this plant community may provide brood rearing/foraging areas for sage grouse, as well as lek sites. Other birds that would frequent this plant community include Western meadowlarks, horned larks, and golden eagles. Many grassland obligate small mammals would occur here.

Mature Cottonwoods/Cool-Season Grass: This plant community may be useful for the same large grazers that would use the Historic Climax Plant Community. However, the plant community composition is less diverse, and thus, less apt to meet the seasonal needs of these animals. It may provide some foraging opportunities for sage grouse when it occurs proximal to woody cover. Good grasshopper habitat equals good foraging for birds. The overstory of large cottonwoods provides habitat for a variety of birds ranging from raptors to neo-tropical migrants.

Mature Cottonwoods/Cheatgrass: The plant community composition is less diverse, and thus, less apt to meet the seasonal needs of large herbivores such as deer and antelope. It may provide some foraging opportunities for sage grouse when it occurs proximal to woody cover. Good grasshopper habitat equals good foraging for birds. The overstory of large cottonwoods provides habitat for a variety of birds ranging from raptors to neo-tropical migrants.

Rhizomatous wheatgrass
This plant community may be useful for the same large grazers that would use the Historic Climax Plant Community. However, the plant community composition is less diverse, and thus, less apt to meet the seasonal needs of these animals. It may provide some foraging opportunities for sage grouse when it occurs proximal to woody cover. Good grasshopper habitat equals good foraging for birds.

Animal Preferences (Quarterly - 1,2,3,4) for commonly occuring plants in MLRA 61, 15-19 inch Black Hills

COMMON NAME/	SCIENTIFIC NAME	SCI. SYMBOL	*Cattle*	*Sheep*	*Horses*	*Mule Deer*	*Antelope*
GRASSES/GRASSLIKES							
alkali bluegrass	Poa secunda ssp. juncifolia	POSEJ	DDDD	PPPP	DDDD	PPPP	PPPP
alkali cordgrass	Spartina gracilis	SPGR	DDDD	UUUU	DDDD	UUUU	UUUU
alkali sacaton	Sporobolus airoides	SPAI	PPPP	DDDD	PPPP	DDDD	DDDD
bearded wheatgrass	Elymus caninus	ELCA	PPPP	DDDD	PPPP	DDDD	DDDD
Big bluegrass	Poa ampla (syn. To Poa secunda)	POAM (POSE)	PPPP	PPPP	PPPP	PPPP	PPPP
big bluestem	Andropogon gerardii	ANGE	PPPP	PPPP	PPPP	DDDD	DDDD
blue grama	Bouteloua gracilis	BOGR2	DDDD	DDDD	DDDD	DDDD	DDDD
Blue wildrye	Elymus glaucus	ELGL	DDDD	DDDD	DDDD	DDDD	DDDD
bluebunch wheatgrass	Pseudoroegneria spicata	PSSP6	PPPP	PPPP	PPPP	DDDD	DDDD
bluejoint reedgrass	Calamagrostis canadensis	CACA4	PPPP	DDDD	PPPP	UUUU	UUUU
buffalograss	Buchloe dactyloides	BUDA	DDDD	DDDD	DDDD	DDDD	DDDD
Canada wildrye	Elymus canadensis	ELCA4	PPPP	PPPP	PPPP	DDDD	DDDD
Canby bluegrass	Poa canbyi (syn. to Poa secunda)	POCA (POSE)	PPPP	PPPP	PPPP	PPPP	PPPP
Columbia needlegrass	Achnatherum nelsonii	ACNE9	PPPP	PPPP	DDDD	DDDD	DDDD
Cusick's bluegrass	Poa cusickii	POCU3	PPPP	PPPP	PPPP	PPPP	PPPP
fowl bluegrass	Poa palustris	POPA2	DDDD	DDDD	DDDD	UUUU	UUUU
green needlegrass	Nassella viridula	NAVI4	PPPP	PPPP	PPPP	PPPP	PPPP
hairy grama	Bouteloua hirsuta	BOHI2	DDDD	DDDD	DDDD	DDDD	DDDD
Indian ricegrass	Achnatherum hymenoides	ACHY	PPPP	PPPP	PPPP	PPPP	PPPP
inland saltgrass	Distichlis spicata	DISP	UUUU	UUUU	UUUU	UUUU	UUUU
inland sedge	Carex interior	CAIN11	DDDD	DDDD	DDDD	UUUU	UUUU
little bluestem	Schizachyrium scoparium	SCSC	PPPP	PPPP	PPPP	DDDD	DDDD
mat muhly	Muhlenbergia richardsonis	MURI	UUUU	UUUU	UUUU	UUUU	UUUU
Nebraska sedge	Carex nebraskensis	CANE2	PPPP	PPPP	PPPP	DDDD	DDDD
needleandthread	Hesperostipa comata	HECO26	PPPP	PPPP	PPPP	PPPP	PPPP
needleleaf sedge	Carex duriuscula	CADU6	UUUU	UUUU	UUUU	UUUU	UUUU
northern reedgrass	Calamagrostis stricta	CAST13	PPPP	DDDD	PPPP	UUUU	UUUU
Nuttall's alkaligrass	Puccinellia nuttaliana	PUNU2	PPPP	PPPP	PPPP	PPPP	PPPP
plains reedgrass	Calamagrostis montanensis	CAMO	DDDD	DDDD	DDDD	DDDD	DDDD
prairie cordgrass	Spartina pectinata	SPPE	PPPP	DDDD	PPPP	UUUU	UUUU
prairie junegrass	Koeleria macrantha	KOMA	DDDD	DDDD	DDDD	DDDD	DDDD
prairie sandreed	Calamovilfa longifolia	CALO	PPPP	DDDD	PPPP	UUUU	UUUU
Pumpelly brome	Bromus inermis spp. pumpellianus	BRINP5	PPPP	PPPP	DDDD	DDDD	UUUU
Richardson's needlegrass	Achnatherum richardsonii	ACRI8	PPPP	DDDD	DDDD	DDDD	DDDD
sand bluestem	Andropogon halli	ANHA	PPPP	DDDD	PPPP	UUUU	UUUU
sand dropseed	Sporobolus cryptandrus	SPCR	DDDD	DDDD	DDDD	UUUU	UUUU
Sandberg bluegrass	Poa secunda	POSE	DDDD	DDDD	DDDD	DDDD	DDDD
sideoats grama	Bouteloua curtipendula	BOCU	PPPP	PPPP	PPPP	DDDD	UUUU
slender wheatgrass	Elymus trachycaulus	ELTR7	PPPP	DDDD	PPPP	DDDD	DDDD
spike oatgrass	Helictotrichon hookeri	HEHO8	PPPP	DDDD	PPPP	DDDD	DDDD
spike sedge	Carex nardina	CANA2	DDDD	DDDD	DDDD	UUUU	UUUU
Spikefescue	Leucopoa kingii	LEK12	PPPP	DDDD	PPPP	PPPP	DDDD
stoneyhills (plains) muhly	Muhlenbergia cuspidata	MUCU3	UUDU	UUDU	UUDU	UUDU	UUDU
switchgrass	Panicum virgatum	PAVI2	UDPD	UDDU	UDPD	UUDU	UUDU
thickspike wheatgrass	Elymus lanceolatus	ELLAL	DDDD	DDDD	DDDD	DDDD	DDDD
threadleaf sedge	Carex filifolia	CAFI	DDDD	DDDD	DDDD	DDDD	PPPP
threeawn	Aristida spp.	ARIST	NNNN	NNNN	NNNN	NNNN	NNNN
Timber oatgrass (danthonia)	Danthonia intermedia	DAIN	DDDD	DDDD	DDDD	UUUU	UUUU
tufted hairgrass	Deschampsia caespitosa	DECA18	PPPP	PPPP	PPPP	DDDD	DDDD
western wheatgrass	Pascopyrum smithii	PASM	DDDD	DDDD	DDDD	DDDD	DDDD
FORBS							
alkali (pursh) seepweed	Suaeda calceoliformis	SUCA2	NNNN	NNNN	NNNN	NNNN	NNNN
American licorice	Glycyrrhiza lepidota	GLLE3	UUUU	UUUU	UUUU	UUUU	UUUU
American vetch	Vicia americana	VIAM	PPPP	PPPP	PPPP	PPPP	PPPP
arrowgrass	Triglochin spp.	TRIGL	T	T	T	T	T
biscuitroots	Lomatium spp.	LOMAT	DDDD	DDDD	UUUU	DDDD	DDDD
bluebells	Mertensia	MERTE	DDDD	PPPP	DDDD	DDDD	DDDD
blue-eyed grass	Sisyrinchium spp.	SISYR	DDDD	PPPP	DDDD	DDDD	DDDD
breadroot scurfpea	Pediomelum esculentum	PEES	DDDD	DDDD	DDDD	DDDD	DDDD
cattail, broad-leaf	Typha latifolia	TYLA	DDDD	UUUU	DDDD	UUUU	UUUU
cattail, narrow-leaf	Typha angustifolia	TYAN	DDDD	UUUU	DDDD	UUUU	UUUU
common comandra (toadflax)	Comandra umbellata	COUMP	UUUU	UUUU	UUUU	UUUU	UUUU
cudweed sagewort	Artemisia ludoviciana	ARLU	UUUU	UUDU	UUUU	UUDU	UUDU
deathcamas	Zigadenus venenosus	ZIVE	TTTT	TTTT	TTTT	TTTT	TTTT
dotted gayfeather	Liatris punctata	LIPU	UPPU	UPPU	UPPU	UPPU	UPPU
erigeron (fleabanes)	Erigeron spp.	ERIGE2	UUUU	UUUU	UUUU	UUUU	UUUU
eriogonum (buckwheat)	Eriogonum spp.	ERIOG	UUUU	DDDD	UUUU	UUUU	UUUU
fringed sagewort	Artemisia frigida	ARFR4	UUUU	UUUU	UUUU	UUUU	UUUU
goldenrod	Oligoneuron	OLIGO3	UUUU	UUUU	UUUU	UUUU	UUUU
green sagewort	Artemisia dracunculus	ARDR4	UUUU	UUUU	UUUU	UUUU	UUUU
gromwell	Buglossoides arvensis	BUAR3	UUUU	UUUU	UUUU	UUUU	UUUU
groundsel	Tephroseris	TEPHR3	UUUU	UUUU	UUUU	UUUU	UUUU
hawksbeard	Crepis acuminata	CRAC2	UUUU	PPPP	UUUU	DDDD	DDDD
horsetails	Equisetum spp.	EQUIS	UUUU	UUUU	UUUU	UUUU	UUUU
iris	Iris spp.	IRIS	UUUU	UUUU	UUUU	UUUU	UUUU
mountain thermopsis	Thermopsis divaricarpa	THDI4	UUUU	UUUU	UUUU	UUUU	UUUU
Nailworts	Paronychia spp.	PARON	UUUU	UUUU	UUUU	UUUU	UUUU
penstemons	Penstemon spp.	PENST	PPPP	PPPP	PPPP	PPPP	PPPP
prairie coneflower	Ratibida columnifera	RACO3	DDDD	PPPP	DDDD	PPPP	PPPP
prairie clovers	Dalea spp.	DALEA	UPPU	UPPU	UPPU	UPPU	UPPU
scurfpeas	Psoralidium spp.	PSORA2	NNNN	NUUN	NNNN	NUUN	NUUN
starwort	Callitriche spp.	CALL16	UUUU	UUUU	UUUU	UUUU	UUUU
stonecrop	Sedum spp.	SEDUM	UUUU	UUUU	UUUU	UUUU	UUUU
twogrooved milkvetch	Astragalus bisulcatus	ASBI2	T	T	T	T	T
violets	Viola spp.	VIOLA	DDDD	DDDD	DDDD	DDDD	DDDD
water hemlocks	Cicuta spp.	CICUT	T	T	T	T	T
western virginsbower	Clematis occidentalis	CLOC2	UUUU	DDDD	UUUU	DDDD	DDDD
western wallflower	Erysimum capitatum	ERCAC	DDDD	DDDD	DDDD	DDDD	DDDD
western yarrow	Achillea lanulosa	ACHIL	UUUU	UUUU	UUUU	UUUU	UUUU
wild onion	Allium textile	ALTE	DDDD	DDDD	DDDD	DDDD	DDDD
TREES, SHRUBS & HALF-SHRUBS							
big sagebrush	Artemisia tridentata	ARTR2	UUUU	DDDD	UUUU	DDDD	DDDD
black greasewood	Sarcobatus vermiculatus	SAVE4	DDDD	DDDD	UUUU	DDDD	DDDD
green rabbitbrush	Chrysothamnus viscidiflorous	CHVI8	DDDD	DDDD	DDDD	DDDD	DDDD
plains cottonwood (sprouts)	Populous deltoides	PODEM	DDDD	DDDD	DDDD	DDDD	DDDD
rubber rabbitbrush	Ericameria nauseosa	ERNA10	UUUU	DDDD	UUUU	DDDD	DDDD
silver sagebrush	Artemisia cana	ARCAC5	DDDD	DDDD	DDDD	PPPP	PPPP
skunkbush sumac	Rhus trilobata	RHTR	DDDD	DDDD	DDDD	DDDD	DDDD
western snowberry	Symphoricarpos occidentalis	SYOC	UUUU	UUUU	UUUU	DDDD	UUUU
wildrose	Rosa woodsii var. woodsii	ROWOW	DDDD	DDDD	UUUU	DDDD	DDDD
willows	Salix L.	SALIX	PPPP	PPPP	DDDD	PPPP	UUUU
winterfat	Krascheninnikovia lanata	KRLA2	PPPP	PPPP	PPPP	PPPP	PPPP
yucca	Yucca glauca	YUGL	DDDD	DDDD	DDDD	DDDD	DDDD

N = not used; U = undesirable; D = desirable; P = preferred; T = toxic

Animal Community – Grazing Interpretations

The following table lists suggested stocking rates for cattle under continuous season-long grazing under normal growing conditions. These are conservative estimates that should be used only as guidelines in the initial stages of the conservation planning process. Often, the current plant composition does not entirely match any particular plant community (as described in this ecological site description). Because of this, a field visit is recommended, in all cases, to document plant composition and production. More precise carrying capacity estimates should eventually be calculated using this information along with animal preference data, particularly when grazers other than cattle are involved. Under more intensive grazing management, improved harvest efficiencies can result in an increased carrying capacity. If distribution problems occur, stocking rates must be reduced to maintain plant health and vigor.

Plant Community	Production (Lbs/acre)	Carrying Capacity* (AUM/ac)
Historic Climax Plant Community	2000-4000	1.0
Mature Cottonwoods/Cool-Season Grass	2000-3000	.6
Mature Cottonwoods/Cheatgrass	800-1800	.3
Rhizomatous wheatgrass	1500-2500	.6

* - Continuous, season-long grazing by cattle under average growing conditions.

Grazing by domestic livestock is one of the major income-producing industries in the area. Rangeland in this area may provide yearlong forage for cattle, sheep, or horses. During the dormant period, the forage for livestock use needs to be supplemented with protein because the quality does not meet minimum livestock requirements.

Hydrology Functions

Water is the principal factor limiting forage production on this site. This site is dominated by soils in hydrologic group B and C, with localized areas in hydrologic group D. Infiltration ranges from moderately slow to rapid. Runoff potential for this site varies from low to moderate depending on soil hydrologic group and ground cover. In many cases, areas with greater than 75% ground cover have the greatest potential for high infiltration and lower runoff. An example of an exception would be where short-grasses form a strong sod and dominate the site. Areas where ground cover is less than 50% have the greatest potential to have reduced infiltration and higher runoff (refer to Part 630, NRCS National Engineering Handbook for detailed hydrology information).

Rills and gullies should not typically be present. Water flow patterns should be barely distinguishable if at all present. Pedestals are only slightly present in association with bunchgrasses such as bluebunch wheatgrass. Litter typically falls in place, and signs of movement are not common. Chemical and physical crusts are rare to non-existent. Cryptogamic crusts are present, but only cover 1-2% of the soil surface.

Recreational Uses

This site provides hunting opportunities for upland game species. The wide variety of plants which bloom from spring until fall have an esthetic value that appeals to visitors.

Wood Products
No appreciable wood products are present on the site.

Other Products
None noted.

Supporting Information

Associated Sites

Overflow	061XY130WY
Subirrigated	061XY174WY

Similar Sites
(058BY228WY) Lowland 15-17" Northern Plains P.Z. has lower production

Inventory Data References (narrative)
Information presented here has been derived from NRCS clipping data and other inventory data. Field observations from range trained personnel were also used. Other sources used as references include: USDA NRCS Water and Climate Center, USDA NRCS National Range and Pasture Handbook, and USDA NRCS Soil Surveys from various counties.

Inventory Data References

Data Source	Number of Records	Sample Period	State	County
SCS-RANGE-417	12	1971-1994	WY	Weston & others
Ocular estimates	5	1990-1999	WY	Weston & others

State Correlation
This site occurs entirely within Wyoming.

Type Locality

Field Offices
Newcastle, Sundance

Relationship to Other Established Classifications

Other References

Site Description Approval

_____ _____

State Range Management Specialist — Date